icaps 2019

July 11 – 15

29th International Conference on Automated Planning and Scheduling

Berkeley CA, USA

PROGRAM

Learn More at **icaps19.icaps-conference.org**

ICAPS 2019

The International Conference on Automated Planning and Scheduling (ICAPS) is the premier conference on enabling smart decision-making in autonomous systems.
ICAPS 2019 will be held July 11-15 in Berkeley (CA), USA.

1.

Doctoral Consortium

July 10

2.

Workshops and Tutorials

July 11-12

3.

The Conference

July 13-15

The International Conference on Automated Planning and Scheduling (ICAPS) is the premier forum for researchers and practitioners in planning and scheduling - two technologies that are critical to manufacturing, space systems, software engineering, robotics, education, and entertainment. The ICAPS conference resulted from merging two bi-annual conferences, namely the International Conference on Artificial Intelligence Planning and Scheduling (AIPS) and the European Conference on Planning (ECP).
The primary objectives of ICAPS are to further the field of automated planning and scheduling through the organization of technical meetings, including the annual ICAPS conference, through the organization of summer schools, tutorials and training activities at various events, through the organization of planning and scheduling competitions, benchmarking and other means of advancing and assessing the state of the art in the field, by promoting the involvement of young scientists in the field through scholarships and other means, and by promoting and disseminating publications, planning and scheduling systems, domains, simulators, software tools and technical material.

Venue

ICAPS 2019 will take place at the

University of California, Berkeley

	Location.	Date.	Address.
Pre-conference (Workshops, Tutorials, and DC)	**Sutardja Dai Hall**	**July 10-12**	**330 Sutardja Dai Hall, MC 1764 Berkeley, CA 94720**
Main Conference	**Martin Luther King, Jr. Student Union · Pauley Ballroom**	**July 13-15**	**2495 Bancroft Way, Berkeley, CA 94720**

Berkeley is a city on the east shore of San Francisco Bay in northern Alameda County, California. Berkeley is home to the oldest campus in the University of California system, the University of California, Berkeley, and the Lawrence Berkeley National Laboratory, which is managed and operated by the University. Berkeley is one of the most politically liberal cities in USA.

Invited Talks

Anca Dragan

U.C. Berkeley

Planning for Human-Robot Interaction

This talk will explore the role of planning in human-robot interaction: not just for generating the robot's actions, but for modeling and anticipating the human's own actions. Applications include self-driving cars, quadrotors navigating around people, and robot arms performing manipulation in shared spaces with humans.

Bio: Anca Dragan is an Assistant Professor in EECS at UC Berkeley, where she runs the InterACT lab. Her goal is to enable robots to work with, around, and in support of people. Anca did her PhD in the Robotics Institute at Carnegie Mellon University on legible motion planning. At Berkeley, she helped found the Berkeley AI Research Lab, is a co-PI for the Center for Human-Compatible AI, and has been honored by the Sloan fellowship, the NSF CAREER award, the Okawa award, MIT's TR35, and an IJCAI Early Career Spotlight.

J. Christopher Beck

University of Toronto

Local Optima in Planning and Neural Sequence Decoding

In local search, a local optima is a region in the solution space that does not contain an optimal solution and where all paths to an optimal solution must traverse states with higher cost. There has been extensive work in the meta-heuristic community in analyzing and escaping local optima. In this talk, we show how local optima in greedy best-first search for planning and in beam search for neural sequence decoding can be used to analyze and reduce some pathological search behavior.

Bio: A Professor of Mechanical & Industrial Engineering at the University of Toronto with MSc and PhD degrees from the Department of Computer Science, University of Toronto. Before re-joining U of T, Chris spent three years at ILOG, now a part of IBM, and two years at the Cork Constraint Computation Centre. He has received four conference paper awards and was awarded the Outstanding Program Committee Member for AAAI2010.

Derek Long

Schlumberger & Kings College London

Drilling Down: Planning in the Field

In this talk, I will shed some light on the roles that planning is playing in work at Schlumberger, a drilling technology services company, where we are using it to help control some very big robots (a few kilometers from top to toe!) as well as in aiding in performing other tasks. A feature of this work that might surprise some is that we have conducted it using PDDL and PDDL planners. Furthermore, we have found that PDDL modeling is an accessible skill for a wide range of engineers, making planning available to a diverse community of users within the company.

Bio: Derek Long joined Schlumberger, a multi-national drilling technology services company, in 2016, after a preparation involving more than 50 years in full time education. During that period, he spent some time at several universities in the UK, including King's College London, where he remains a part-time professor

Conference at a Glance

Room	Wednesday, July 10th
310	Doctoral Consortium

Thursday, July 11th

	AM	PM
240	(W) KEPS	(T) From Teaching the PDDL Novice to Empowering the Planning Solution Integrator
242	(W) HSDIP	*continued*
254	(W) Hierarchical Planning	*continued*
250	(T) Goal Recognition Design	(T) Integrated Task and Motion Planning
310	(W) PlanRob	*continued*
630	(W) SPARK (T) Planning and Scheduling Approaches for Urban Traffic Control	(W) SPARK (Continued)

Friday, July 12th

240	(W) WIPC	*continued*
242	(W) IntEx	*continued*
254	(T) AI Planning for Robotics with ROSPlan	(T) Multi-agent Path Finding: Models, Solvers, and Systems
250	(T) Deep Reinforcement Learning with Applications in Transportation	(T) Temporal Reasoning
310	(W) XAIP	*continued*
630	(W) Actions	*continued*

Saturday, July 13th

Invited talk: Anca Dragan

Classical Planning | Planetary Exploration

Coffee Break

Probabilistic Planning I | LTL & Temporal Planning

Lunch

Search | Reinforcement Learning

Coffee Break

Invited Industry Session | Hybrid Planning & Algorithm Selection

Complexity

Poster & Demo Session

Sunday, July 14th

Invited talk: J. Christopher Beck

Multi-Agent Planning | Knowledge Engineering and Execution

Coffee Break

Optimal & Oversubscription Planning | Scheduling under Uncertainty

Lunch

Recognition, Goal and Model Reasoning | Applications I

Coffee Break

Recognition II | Robotics I

Awards + Community meeting (ends at 18:30)

Banquet

Monday, July 15th

Invited talk: Derek Long

Probabilistic Planning II | Applications II

Coffee Break

Learning | Constraint Reasoning and OR

Lunch

Path and Motion Planning | Robotics II

Coffee Break

Path Planning | Transportation Scheduling

Applications III | Hybrid Planning

Workshops and Tutorials

Workshops

Reasoning about Actions and Processes: Highlights of Recent Advances (Actions)
Jorge Baier, Sheila McIlraith, Sebastian Sardina
630

Hierarchical Planning
Pascal Bercher, Gregor Behnke, Vikas Shivashankar, Ron Alford
254

Heuristics and Search for Domain-independent Planning (HSDIP)
Patrik Haslum, Daniel Gnad, Miquel Ramirez, Florian Pommerening, Jendrik Seipp, Florian Geisser, Guillem Francès, Silvan Sievers
242

Integrating Planning, Acting, and Execution (IntEx)
Mak Roberts, Tiago Vaquero, Tim Niemueller, Simone Fratini
242

The International Planning Competition (WIPC)
Alvaro Torralba, Florian Pommerening, Thomas Keller, Amanda Coles, Andrew Coles
240

Knowledge Engineering for Planning and Scheduling (KEPS)
Mauro Vallati, Lukas Chrpa, Ron Petrick, Tiago Vaquero, Christian Muise, Tathagata Chakraborti
240

Planning and Robotics (PlanRob)
Michael Cashmore, Alberto Finzi, AndreA Orlandini
310

The Scheduling and Planning Applications woRKshop (SPARK)
Sara Bernardini, Simon Parkinson, Kartik Talamadupula, Neil Yorke-Smith
630

Explainable Planning (XAIP)
Tathagata Chakraborti, Dustin Dannenhauer, Joerg Hoffmann, Daniele Magazzeni
310

Tutorials

Multi-Agent Pathfinding: Models, Solvers, and Systems
Roman Barták, Philipp Obermeier, Torsten Schaub, Tran Cao Son, Roni Stern
254

Planning and Scheduling Approaches for Urban Traffic Control
Scott Sanner, Stephen F. Smith, Mauro Vallati
630

Temporal Reasoning
Nikhil Bhargava, Brian Williams
250

AI Planning for Robotics with ROSPlan
Michael Cashmore, Daniele Magazzeni
254

From Teaching the PDDL Novice to Empowering the Planning Solution Integrator
Jan Dolejsi, Derek Long, Maria Fox, Christian Muise
240

Integrated Task and Motion Planning
Malik Ghallab, Felix Ingrand, Rachid Alami, Thierry Simeon
250

Goal Recognition Design
Sarah Keren, William Yeoh
250

Deep Reinforcement Learning with Applications in Transportation
Zhiwei (Tony) Qin, Jian Tang, Jieping Ye
250

All the room numbers for the Doctoral Consortium, Workshops and Tutorials are in Sutardja Dai Hall

Agenda

Invited Talks | Pauley West Sessions | Pauley East Sessions | Other

- July 10

Doctoral Consortium

- July 11-12

Workshops and Tutorials

- July 13

8:15-8:30 am

Start of Conference

Opening Remarks

8:30-9:30 am

Invited talk: Anca Dragan

9:40-10:40 am

Classical Planning

Theoretical Foundations for Structural Symmetries of Lifted PDDL Tasks Silvan Sievers, Gabriele Röger, Martin Wehrle and Michael Katz

Relaxed BDDs: An Admissible Heuristic for Delete-Free Planning Based on a Discrete Relaxation Margarita Castro, Chiara Piacentini, Andre Augusto Cire and Chris Beck

Planning with Global State Constraints and State-Dependent Action Costs Franc Ivankovic, Patrik Haslum and Dan Gordon - **Short Paper**

Advanced Factoring Strategies for Decoupled Search using Linear Programming Frederik Schmitt, Daniel Gnad and Joerg Hoffmann - **Short Paper**

Planetary Exploration

Robust Operations Management on Mars Michael Saint-Guillain

Temporal Brittleness Analysis of Task Networks for Planetary Rovers Tiago Vaquero, Steve Chien, Jagriti Agrawal, Wayne Chi and Terrance Huntsberger

Mars On-site Shared Analytics, Information, and Computing Joshua Vander Hook, Tiago Stegun Vaquero, Federico Rossi, Martina Troesch, Marc Sanchez-Net, Joshua Schoolcraft, Jean-Pierre de la Croix and Steve Chien

10:40-11:00 am

Coffee Break

11:00-12:30 pm

Probabilistic Planning I

Robust Bayes-Adaptive Planning under Model Uncertainty Apoorva Sharma, James Harrison, Matthew Tsao and Marco Pavone

POMHDP: Search-based Belief Space Planning using Multiple Heuristics Sung-Kyun Kim, Oren Salzman and Maxim Likhachev

An Exact Algorithm to make a Trade-off between Cost and Probability in SSPs Valdinei Freire, Karina Valdivia Delgado and Willy Arthur Silva Reis

Discovery of Optimal Solution Horizons in Non-Stationary Markov Decision Processes with Unbounded Rewards Grigory Neustroev, Mathijs de Weerdt and Remco Verzijlbergh

LTL & Temporal Planning

Planning under LTL Environment Specifications Benjamin Aminof, Giuseppe De Giacomo, Aniello Murano and Sasha Rubin

Learning Interpretable Models Expressed in Linear Temporal Logic Alberto Camacho and Sheila A. McIlraith

Towards a Unified View of AI Planning and Reactive Synthesis Alberto Camacho, Meghyn Bienvenu and Sheila A. McIlraith

Replanning for Situated Robots Michael Cashmore, Andrew Coles, Bence Cserna, Erez Karpas, Daniele Magazzeni and Wheeler Ruml

Temporal Planning as Refinement-Based Model Checking Alexander Heinz, Martin Wehrle, Sergiy Bogomolov, Daniele Magazzeni, Marius Greitschus and Andreas Podelski - **Short Paper**

12:30-2:00 pm

Lunch

2:00-3:30 pm

Search

On the Pathological Search Behavior of Distributed Greedy Best First Search Ryo Kuroiwa and Alex Fukunaga

Symbolic Planning with Axioms David Speck, Florian Geißer, Robert Mattmüller and Álvaro Torralba

Bridging the Gap Between Abstractions and Critical-Path Heuristics via Hypergraphs Bridging the Gap Between Abstractions and Critical-Path Heuristics via Hypergraphs

T-REX: SAT-based Tree Exploration for Efficient and High-Quality HTN Planning Dominik Schreiber, Tomáš Balyo, Damien Pellier and Humbert Fiorino

Solving Graph Problems in Euclidean Space Using FastMap Jiaoyang Li, Ariel Felner, Sven Koenig and T. K. Satish Kumar - **Short Paper**

Reinforcement Learning

Foundations for Restraining Bolts: Reinforcement Learning with LTLf/LDLf restraining specifications Giuseppe De Giacomo, Marco Favorito, Luca Iocchi and Fabio Patrizi

Deep Policies for Width-Based Planning in Pixel Domains Miquel Junyent, Anders Jonsson and Vicenç Gómez

Resource Constrained Deep Reinforcement Learning Abhinav Bhatia, Pradeep Varakantham and Akshat Kumar

Learning Classical Planning Strategies with Policy Gradient Pawel Gomoluch, Dalal Alrajeh and Alessandra Russo

Size-Independent Neural Transfer for RDDL Planning Sankalp Garg, Aniket Bajpai and Mausam - **Short Paper**

3:30-3:50 pm

Coffee Break

3:50-5:40 pm

Invited Industry Session

Large Scale Analysis of Satellite Imagery and Other Geospatial Data James Crawford (Orbital Insight)

Planning for Transportation Influence and Other Problems Matthew Klenk (PARC)

TBA Richa Varma (United Technologies Research Center)

TBA Stefan Witwicki (Alliance Innovation Lab Silicon Valley, Renault-Nissan-Mitsubishi)

Balancing Search and Optimization in a Self-Driving Car Omer Baror (Waymo)

High-level decision making and planning using large-scale data Sammy Omari (Lyft)

Hybrid Planning & Algorithm Selection

Combined time and energy optimal trajectory planning with quadratic drag for mixed discrete-continuous task planning Ayal Taitler, Ilya Ioslovich, Per-Olof Gutman and Erez Karpas - **Short Paper**

Algorithm Selection in Optimization and Application to Angry Birds Shahaf S. Shperberg, Avinoam Yehezkel and Solomon Eyal Shimony

Complexity

Eliminating Redundant Actions in Partially Ordered Plans -- A Complexity Analysis Conny Olz and Pascal Bercher

On Computational Complexity of Automorphism Groups in Classical Planning Alexander Shleyfman

On the Relation between Star-Topology Decoupling and Petri Net Unfolding Daniel Gnad and Joerg Hoffmann

4:40-5:40 pm

6:00-8:00 pm

Poster and Demo Session

- July 14

8:30-9:30 am

Invited talk: J. Christopher Beck

9:40-10:40 am

Multi-Agent Planning

Best-First Width Search for Multi Agent Privacy-preserving Planning Alfonso E. Gerevini, Nir Lipovetzky, Francesco Percassi, Alessandro Saetti and Ivan Serina

A Factored Approach to Contingent Multi-Agent Planning Michal Štolba, Daniel Fišer and Antonín Komenda

Privacy Leakage of Search-based Multi-Agent Planning Algorithms Shashank Shekhar, Ronen Brafman and Guy Shani

Knowledge Engineering and Execution

PLASP 3: Towards Effective ASP Planning Yannis Dimopoulos, Martin Gebser, Patrick Lühne, Javier Romero and Torsten Schaub - **Journal Paper**

On Compiling Away PDDL3 Qualitative Preferences without Using Automata Francesco Percassi and Alfonso Emilio Gerevini

Goal Reasoning in a CLIPS-based Executive for Integrated Planning and Execution Tim Niemueller, Till Hofmann and Gerhard Lakemeyer

10:40-11:00 am — **Coffee Break**

11:00-12:30 pm

Optimal & Oversubscription Planning

Subset Saturated Cost Partitioning for Optimal Classical Planning Jendrik Seipp and Malte Helmert

Counterexample-Guided Abstraction Refinement for Pattern Selection in Optimal Classical Planning Alexander Rovner, Silvan Sievers and Malte Helmert - Short Paper

An Empirical Study of Perfect Potential Heuristics Augusto B. Corrêa and Florian Pommerening - Short Paper

Lagrangian Decomposition for Optimal Cost Partitioning Florian Pommerening, Gabriele Röger, Malte Helmert, Hadrien Cambazard, Louis-Martin Rousseau and Domenico Salvagnin - Best Paper Award

Oversubscription Planning as Classical Planning with Multiple Cost Functions Michael Katz, Emil Keyder, Florian Pommerening and Dominik Winterer

Scheduling under Uncertainty

Tabu-Based Large Neighbourhood Search for Time/Sequence-Dependent Scheduling Problems with Time Windows Lei He, Mathijs de Weerdt and Neil Yorke-Smith

Quantifying Degrees of Controllability in Temporal Networks with Uncertainty Shyan Akmal, Savana Ammons, Maggie Li and Jim Boerkoel - Honorable Mention - Best Student Paper Award

Propagating Piecewise-Linear Weights in Temporal Networks Luke Hunsberger and Roberto Posenato

Measuring and Optimizing Durability Against Scheduling Disturbances Joon Lee, Vivaswat Ojha and Jim Boerkoel - Short Paper

Reducing the Computational and Communication Overhead of Robust Agent Rescheduling Jordan Abrahams, William Lloyd, Grace Diehl, Marina Knittel, Judy Lin, David Chu, Jeremy Frank and Jim Boerkoel

12:30-2:00 pm — **Lunch**

2:00-3:30 pm

Recognition, Goal and Model Reasoning

Foundations of Human-Aware Planning – A Tale of Three Models Tathagata Chakraborti - Honorable Mention - Best Dissertation Award

Model Recognition as Planning Diego Aineto, Sergio Jiménez, Eva Onaindia and Miquel Ramírez

Explicability? Legibility? Predictability? Transparency? Privacy? Security? The Emerging Landscape of Interpretable Robot Behavior Tathagata Chakraborti, Anagha Kulkarni, Sarath Sreedharan, David Smith and Subbarao Kambhampati

Efficient Heuristic Search for Optimal Environment Redesign Sarah Keren, Luis Pineda, Avigdor Gal, Erez Karpas and Shlomo Zilberstein

Finding Centroids and Minimum Covering States in Planning Alberto Pozanco, Yolanda E-Martín, Susana Fernández and Daniel Borrajo - Short Paper

Applications I

ZAC: A Zone pAth Construction Approach for Effective Real Time Ride Sharing Meghna Lowalekar, Pradeep Varakantham and Patrick Jaillet - Best Application Paper

Reinforcement Learning Based Querying in Camera Networks for Efficient Target Tracking Anil Sharma, Saket Anand and Sanjit Kaul

Optimizing Parameters for Uncertain Execution and Rescheduling Robustness Wayne Chi, Jagriti Agrawal and Steve Chien

Front delineation and tracking with multiple underwater vehicles Andrew Branch, Mar M. Flexas, Brian Claus, Andrew F. Thompson, Yanwu Zhang, Evan B. Clark, Steve Chien, David M. Fratantoni, James C. Kinsey, Brett Hobson, Brian

3:30-3:50 pm — **Coffee Break**

3:50-4:30 pm

Recognition II

Landmark-Enhanced Heuristics for Goal Recognition in Incomplete Domain Models Ramon Fraga Pereira, André Grahl Pereira and Felipe Meneguzzi

Error-Tolerant Anytime Approach for Plan Recognition using a Particle Filter Jean Massardi, Mathieu Gravel and Éric Beaudry

Robotics I

POMDP-based Candy Server: Lessons Learned from a Seven Day Demo Arthur Claviere, Souradeep Dutta and Sriram Sankaranarayanan

Trajectory Tracking Control for Robotic Vehicles using Counterexample Guided Training of Neural Networks Marcus Hoerger, Joshua Mun Liang Song, Hanna Kurniawati and Alberto Elfes

4:40-6:30 pm — **Awards Session & Community Meeting**

7:00-9:00 pm — **Banquet**

July 15

8:30-9:30 am — **Invited talk: Derek Long**

9:40-10:40 am

Probabilistic Planning II

Online Risk-Bounded Motion Planning for Autonomous Vehicles in Dynamic Environments Xin Huang, Sungkweon Hong, Andreas Hofmann and Brian Williams

A theoretical and algorithmic analysis of configurable MDPs Rui Silva, Gabriele Farina, Francisco S. Melo and Manuela Veloso

Stochastic Planning with Lifted Symbolic Trajectory Optimization Hao Cui, Thomas Keller and Roni Khardon

Applications II

Towards Automating Crime Prevention through Environmental Design (CPTED) Analysis to Predict Burglary Leanne Monchuk, Simon Parkinson and James Kitchen

The Clustered Dial-a-Ride Problem Fabian Feitsch and Sabine Storandt

Mixed Integer Programming versus Evolutionary Computation for Optimizing a Hard Real-World Staff Assignment Problem Jannik Peters, Daniel Stephan, Isabel Amon, Hans Gawendowicz, Julius Lischeid, Lennart Salabarria, Jonas Umland, Felix Werner, Martin S. Krejca, Ralf Rothenberger, Timo Kötzing and Tobias Friedrich

10:40-11:00 am — **Coffee Break**

11:00-12:30 pm

Learning

Towards Stable Symbol Grounding with Zero-Suppressed State AutoEncoder Masataro Asai and Hiroshi Kajino

Unsupervised Grounding of Plannable First-Order Logic Representation from Images Masataro Asai

Fast Feature Selection for Linear Value Function Approximation Bahram Behzadian, Soheil Gharatappeh and Marek Petrik

Maximum Entropy based Independent Learning in Anonymous Multi-Agent Settings Tanvi Verma, Pradeep Varakantham and Hoong Chuin Lau

Constraint Reasoning and OR

Learning Scheduling Models from Event Data Arik Senderovich, Kyle E. C. Booth and J. Christopher Beck

Efficiently Exploring Ordering Problems through Conflict-directed Search Jingkai Chen, Cheng Fang, David Wang, Andrew Wang and Brian Williams

Analysis of Backward Sequence in Cluster Tools with Processing Time Variations Jun-Ho Lee and Hyun-Jung Kim - Short Paper

An MDD-based Lagrangian Approach to the Multi-Commodity Pickup-and-Delivery TSP Margarita Castro, Andre Augusto Cire and Chris Beck - Journal Paper

A stochastic dual dynamic integer programming for the uncapacitated lot-sizing problem with uncertain demand and costs Franco Quezada, Céline Gicquel and Safia Kedad-Sidhoum

12:30-2:00 pm — **Lunch**

2:00-3:30 pm

Path and Motion Planning

Implicitly Coordinated Multi-Agent Path Finding under Destination Uncertainty: Success Guarantees and Computational Complexity Bernhard Nebel, Thomas Bolander, Thorsten Engesser and Robert Mattmüller - Journal Paper

Lazy CBS: Implict Conflict-Based Search Using Lazy Clause Generation Graeme Gange, Daniel Harabor and Peter J. Stuckey

Improving the Combination of JPS and Geometric Containers Yue Hu, Long Qin, Quanjun Yin, Daniel Harabor and Cong Hu - Short Paper

Learning Heuristic for Mobile Robot Path Planning Using Deep Neural Network Takeshi Takahashi, He Sun, Dong Tian and Yebin Wang

Generalized Lazy Search for Robot Motion Planning: Interleaving Search and Edge Evaluations via Event-based Toggles Aditya Mandalika, Sanjiban Choudhury, Oren Salzman and Siddhartha Srinivasa - Best Student Paper Award

Robotics II

Open-world Reasoning for Service Robots Yuqian Jiang, Nick Walker, Justin Hart and Peter Stone

Intruder Alert! Optimization Models for Solving the Mobile Robot Graph-Clear Problem Michael Morin, Margarita Castro, Kyle Booth and Chris Beck - Journal Paper

Provable Infinite-Horizon Real-Time Planning for Repetitive Tasks Fahad Islam, Oren Salzman and Maxim Likhachev

Speeding Up Search-based Motion Planning via Conservative Heuristics Ishani Chatterjee, Maxim Likhachev, Ashwin Khadke and Manuela Veloso - Short Paper

An Hierarchical Approach to Active Semantic Mapping Using Probabilistic Logic and Information Reward POMDP Tiago Veiga, Miguel Silva, Rodrigo Ventura and Pedro U. Lima

3:30-3:50 pm

Coffee Break

3:50-4:30 pm

Path Planning

Cutting the Size of Compressed Path Databases With Wildcards and Redundant Symbols Mattia Chiari, Shizhe Zhao, Adi Botea, Alfonso Gerevini, Daniel Harabor, Alessandro Saetti, Matteo Salvetti and Peter J. Stuckey

Disjoint Splitting for Conflict-Based Search for Multi-Agent Path Finding Jiaoyang Li, Daniel Harabor, Peter Stuckey, Ariel Felner, Hang Ma and Sven Koenig - **Short Paper**

A Multi-Label A* Algorithm for Multi-Agent Pathfinding Florian Grenouilleau, Willem-Jan van Hoeve and J. N. Hooker - **Short Paper**

Transportation Scheduling

Approximate Gradient Descent Convergence Dynamics for Adaptive Control on Heterogeneous Networks Jean Carpentier and Sebastien Blandin

Using Bi-Directional Information Exchange to Improve Decentralized Schedule-Driven Traffic Control Hsu-Chieh Hu and Stephen Smith

4:40-5:40 pm

Applications III

Exact Methods for Extended Rotating Workforce Scheduling Problems Lucas Kletzander, Nysret Musliu, Johannes Gärtner, Werner Schafhauser and Thomas Krennwallner

Solution Approaches for an Automotive Paint Shop Scheduling Problem Felix Winter, Emir Demirović, Nysret Musliu and Christoph Mrkvicka

Personalized Medication and Activity Planning in PDDL+ Fares K. Alaboud and Andrew Coles

Hybrid Planning & Algorithm Selection

A Logical Semantics for PDDL+ Vitaliy Batusov and Mikhail Soutchanski

Mixed Discrete Continuous Non-Linear Planning Through Piecewise Linear Approximation Elad Denenberg and Amanda Coles

Cyber-Physical Planning: Deliberation for Hybrid Systems with a Continuous Numeric State Arthur Bit-Monnot, Luca Pulina and Armando Tacchella

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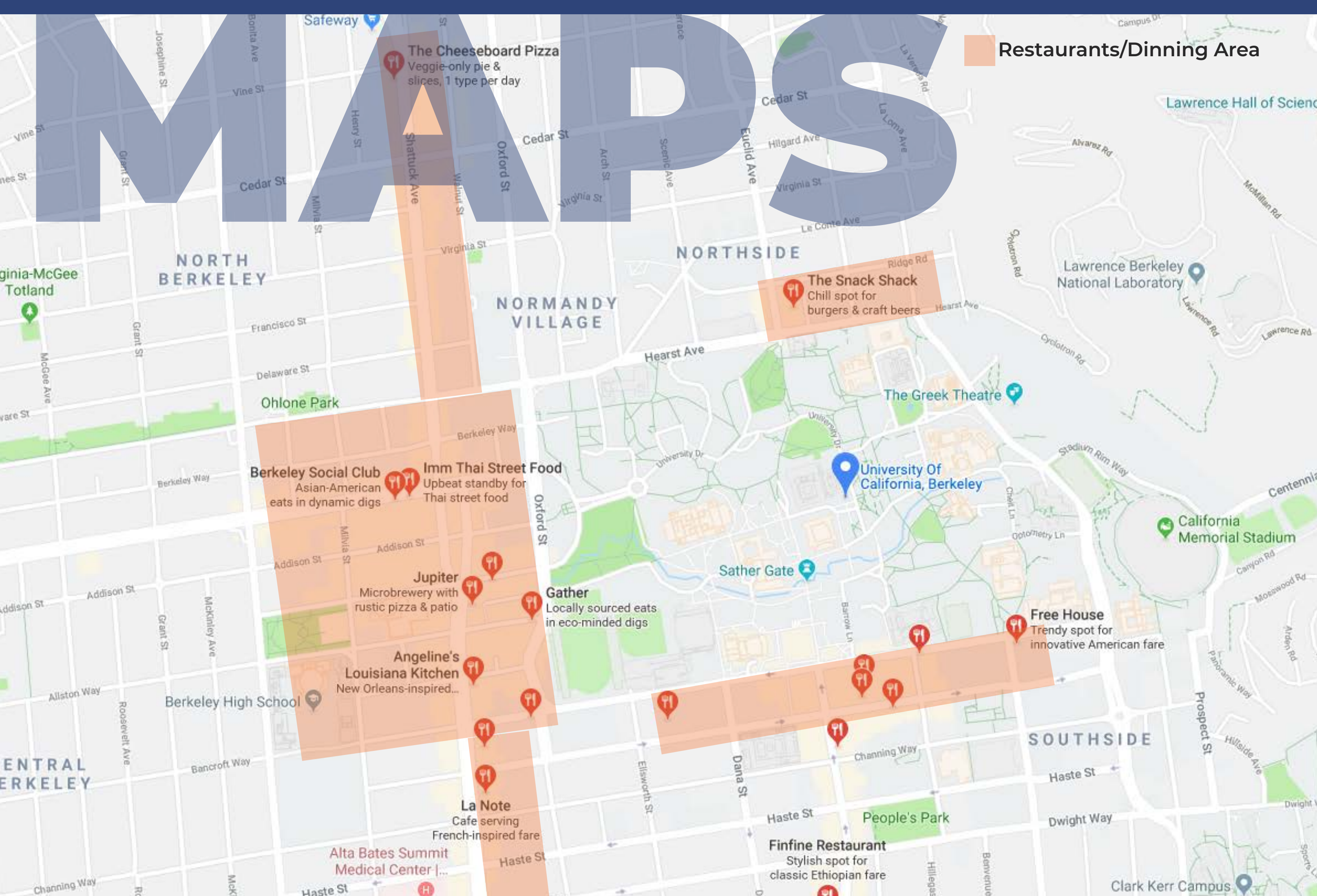

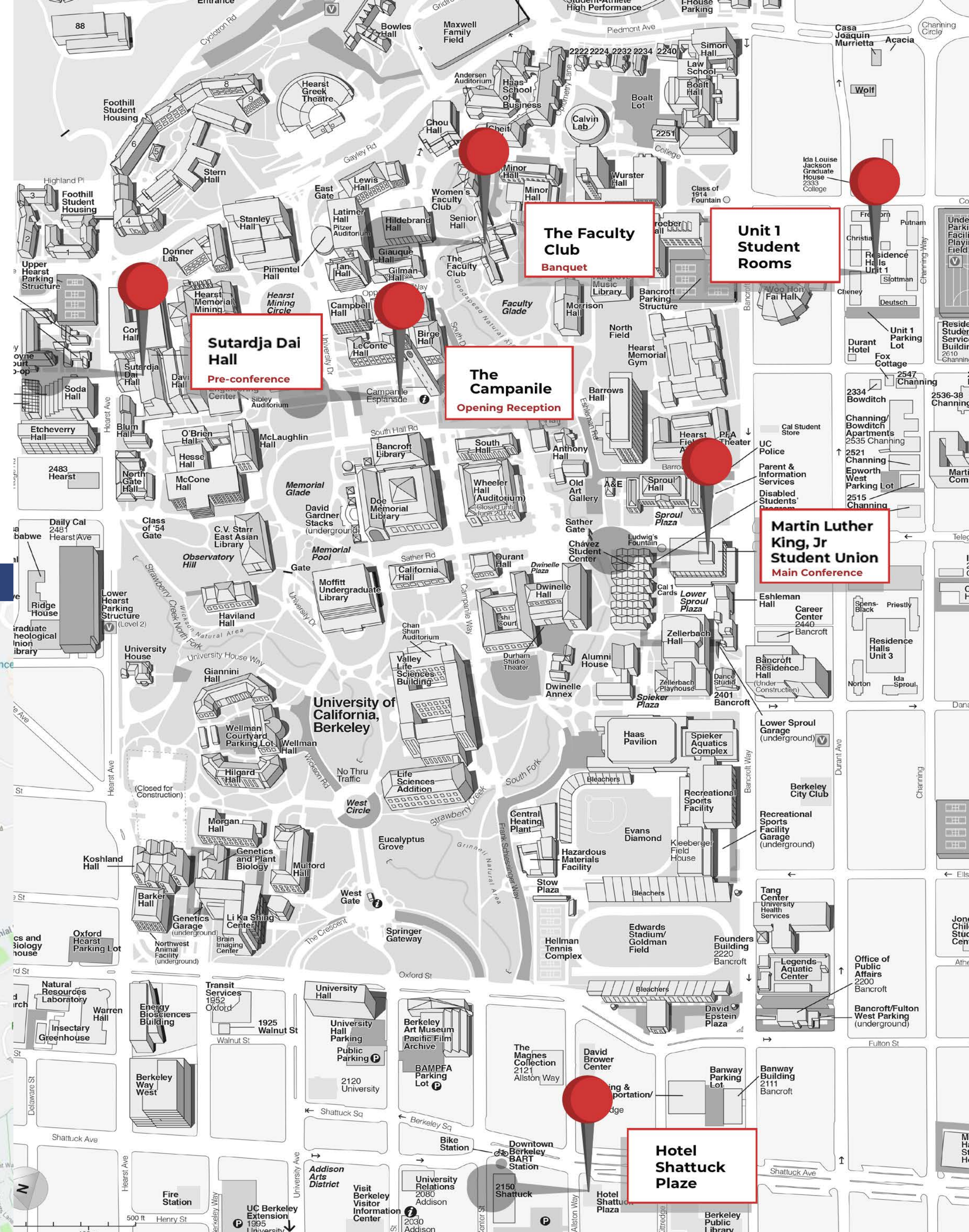

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Up Coming Events

Don’t miss out!

ICAPS 2020 in Nancy, France

June 15 - 16

The International Conference on Automated Planning and Scheduling (ICAPS) is the premier forum for exchanging news and research results on theory and applications of intelligent planning and scheduling technology. ICAPS 2020 will be held in Nancy, France.


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2019